

"OC Powder - The future of riot control"

The system concept which MP Laboratories, Inc. would like to represent, is a new chemical riot control agent. Currently, standard practice to control or disperse unruly crowds or demonstrators is to either launch or throw several pyrotechnic type tear gas grenades or projectiles. The pyrotechnic mixtures begin burning and release tremendous amounts of smoke, which contain the chemical agent. Today, tear gas grenades can be classified as either CS (o-chlorobenzylmalononitrile) or CN (w-chloroacetophenone). The researchers at MP Laboratories, Inc. have developed a new riot control agent. It's effectiveness is such that pyrotechnic dispersion is not required but if desired this product can be adapted to this format also. The materials which comprise this product are generally considered "nonhazardous". The primary ingredient of this new riot control agent is Oleoresin Capisicum (OC). OC is extracted from hot peppers. Just as the aerosols containing "pepper" have taken control of the defensive spray market, OC in the riot control theater will become accepted quickly since it can be considered a "natural" chemical. Law enforcement agencies will rally behind the reduction of liability with this product. Pyrotechnic grenades have the ability to start fires, cause burns, and pollute the environment. CS and CN when used indoors tends to permeate porous materials which makes post operational cleanup very costly. OC will greatly reduce or eliminate these concerns and many others. All riot control agents have been known to cause injuries, and fatalities when used improperly. The use of this new OC dispersment powder does not reduce the need for adequate training for officers and troops having the possibility of being used for riot control. As with many other forms of training, training with OC must be done well in advance so that under the high pressure situation of an uprising, the proper and necessary steps to quell that riot are taken and mistakes are not made.

MP Laboratories, Inc. has developed an innovative process in manufacturing OC Powder by which coating inert and non-hazardous powders with OC. This new product is called OC Powder. This powder matrix has been developed to optimize safety, reduce the risk of fire hazard, encourage environmental friendliness, reduce potential health or death hazards over current technology, and situational adaptability in a variety of formats and devices for delivery where needed. OC powder is manufacturing controls include particle sizing, homogeneity, and flowability and cost.

OC powder is relatively new. OC powder is the next successive step in delivering a proven less than lethal lachrymatory agent into a wider more acceptable variety of delivery devices.

MP Laboratories, Inc. has moved this project past the concept and prototype phases of development and are currently marketing a variety of delivery methods for OC powder. The delivery technology involved has been around for over seventy years. The new innovation is to substitute the more highly volatile chemical agents with the safer product of OC powder.

Oleoresin Capsicum

Synonyms:

Capsaicin

N-[(4-Hydroxy-3-methoxyphenyl)methyl]-8-methyl-6-nonenamide

trans-8-methyl-N-vanillyl-6-nonenamide

N-(4-hydroxy-3-methoxybenzyl)-8-methyl-non-trans-6-enamide

OC

CAS Number: 8023-77-7 (Oleoresin Capsicum)

OC (Oleoresin Capsicum) is an extract of the cayenne pepper. Capsaicin is the active component of the oleoresin capsicum which is considered the "heat". In most cases, OC is dispersed by the use of aerosols but use of OC powders is growing and it is predicted to dominate the market in the coming years as the mainstay of riot control and crowd dispersement. OC aerosols, commonly known as pepper sprays, are readily available to consumers in many retail outlets and catalogues.

OC has a peppery odor. In low concentrations, the eyes will involuntarily close, have a burning sensation with profuse tearing. The nose will run, and exposed skin will have a burning sensation. OC is an inflammatory agent and will cause severe coughing, in concurrence with a tightness in the chest and throat. Occasionally, dizziness or swimming of the head will be experienced. All of the above effects are produced 60 seconds after dosing, and they will last for 45 minutes after being dosed. As with any riot control agent when used in the aerosol form there could be individuals which are either so motivated or influenced by drugs or alcohol that little effect will be produced. The inflammatory agent OC works very differently. OC causes gastrointestinal and dermal irritation along with bronchoconstriction. OC works directly on the nerves in the skin, eyes and lungs. OC seeks out the nerve structures of the eyes and causes involuntary closing of the lids. OC upon entering the lungs seeks out the pulmonary C-fiber neurons to cause rapid and shallow breathing. This sounds terrible but it is far less harsh than the active destruction of tissue which can be caused by its predecessors CS or CN. The decontamination of OC is much

easier and does not require extensive procedures for the cleanup of this biodegradable substance.

OC is less potentially lethal than CS or CN, but as with all chemical agents, these chemicals are "inherently dangerous" and should only be used at a level of force between "Control & Restraint" and "Temporary Incapacitation". OC has come under fire in recent times due to the inflammatory effects it has on the lungs and the devastating effects it has on asthmatics and other people with lung ailments.

And why not "OC"? It's environmentally friendly and it's much safer than the industry standards of CS or CN. CS and CN are both large synthesized organic chemicals. They will both cause incredibly disabling burns and cause extensive tissue destruction, if left on the individual for an extended period of time. They both cause gastrointestinal, dermal and pulmonary irritation but the safety margin of use is critical. These irritant agents work on the neural pathways to the brain. If these pathways are "numbed" by alcohol or drugs, most of their usefulness can be defeated and the irritants will be ineffective. CS and CN are very toxic and are recognized by the Department of Transportation as POISONS and CN is even considered a MARINE POLLUTANT. Decontamination and cleanup are also important issues which must be looked at. Both can be rather stubborn when trying to remove from a person or room in which it was used. Cleanup can take days to completely eradicate their presence.

Carriers, or chemical solvents and powders are another topic which must be looked at. At times, the solvent which carries the chemical agent can be just as or more toxic than the agent itself. This has to change. And it has, with this new formulation from MP Laboratories, Inc.

Products currently on the market include the dispersion by pyrotechnic means which include 37/38 mm projectiles, 35 and 66 mm grenades, and muzzle dispersive devices. Other means of dispersing the product include through pressurized aerosols, and compressed or forced air blowing devices. Chemical agents can be dispersed in three major ways, mechanical, chemical, and a combination of both. These dispersion methods can be broken down into a number of specific subcategories.

1. Mechanical Dissemination

A. *Blast Dispersion of powders*

Blast dispersion uses an explosive charge which upon ignition creates tremendous pressures which ruptures a weak point in the device allowing the chemical agent to be expelled with great force.

B. *Nonblast dispersion of powders.*

This generally entails the use of a high velocity air source which picks up the agent and carries it out of the device to disperse or the mechanical rupturing of a powder filled projectile.

2. **Combined Chemical and Mechanical Dissemination**

A. *Aerosol streamers, mists, and foggers.*

Commonly called defense sprays, this method is highly recognized and extensively used not only by the law enforcement industry but also by the consumer market. These devices use the mechanical force of pressured vessels to carry the solvent-carrying agent into the air.

B. *Powder filled grenade*

This type uses a small explosive force to activate a compressed gas which causes the grenade to expel it's powder.

OC Powder can be used in a variety of missions from riot and crowd control, barricade and hostage situations to its use in security devices. Using OC powder to quell large riots is very effective. It only remains in the area as long as needed. Clean up is simple as sending in street sweepers or flushing the streets with fire hoses. Because of it's environmentally friendly nature this agent may be flushed to storm drains.

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